Epidermoid anal cancer: results from the UKCCR randomized trial of radiotherapy alone *versus* radiotherapy, 5-fluorouracil, and mitomycin.

UKCCR Anal Cancer Trial Working Party. Lancet 1996;348:1049.

OBJECTIVE: To compare combined modality therapy with radiotherapy alone in patients with epidermoid anal cancer. DESIGN: Prospective randomized study. PARTICIPANTS: A total of 585 of 856 eligible patients with anal canal and margin epidermoid cancer. METHODS: Participants were randomized to receive either 45 Gy/20 to 25 fractions during four to five weeks (290 patients) or the same regimen of radiotherapy combined with 5-fluorouracil 1,000 mg/m^2 for four days or 750 mg/m^2 for five days by continuous infusion during the first and final weeks of radiotherapy and mitomycin 12 mg/m^2 on day 1 of the first course (295 patients). End points were local failure rate, overall survival, and disease-specific survival. RESULTS: After a median follow-up of 42 months, combined modality therapy decreased the risk of local failure by 46 percent (from 59 percent in radiotherapy alone to 36 percent in combined modality therapy). Although there was no difference in overall survival, disease-specific survival was improved with combined modality treatment (relative risk of death from anal cancer was 0.71 (range, 0.53–0.95, 95 percent confidence interval; $P = 0.02$). Early morbidity (less than two months) was more frequent in the combined modality group ($P = 0.03$), but late morbidity was comparable between treatment groups. CONCLUSION: Standard treatment for epidermoid anal canal cancer should be combined chemoradiotherapy with 5-fluorouracil and mitomycin.—JUDITH L. TRUDEL, M.D.

Disconnection, pouch revision and reconnection of the ileal pouch-anal anastomosis.

Sagar PM, Dozois RR, Wolff BG, Kelly KA. Br J Surg 1996;83:1401.

The authors retrospectively reviewed records of 23 patients with ileal pouch-anal anastomosis in whom pouch revision and reanastomosis were performed. One patient had familial adenomatous polyposis, and 22 had ulcerative colitis. Factors leading to pouch revision were a long efferent spout, sepsis and/or fistula, redundant blind limb, a twisted pouch, anastomotic problems, and absence of a reservoir. An abdominal approach was used to mobilize and detach the pouch from the anus. Operations included excision of a long efferent spout, excision of the old pouch and creation of a new pouch, revision of an existing pouch, excision of a long blind end, rotation of the pouch on its longitudinal axis and excision of fistulous tracts with pouch repair, and neo-ileal pouch-anal anastomosis. The existing pouch was salvaged in 16 patients and a new pouch constructed in 7 others. In all patients, a temporary ileostomy was constructed and left in place for two to three months before closure. Postoperative complications included five cases of partial small-bowel obstruction, which resolved with conservative treatment and one significant intraoperative cardiac arrhythmia. Eleven of the 23 patients reported good to excellent function at a median of five years follow-up; five reported fair function, and one reported recurrent pouchitis. Surgery was not successful in six patients secondary to incontinence, poor functional results, or subsequent development of Crohn's disease. These patients subsequently underwent pouch excision and creation of a permanent Brooke ileostomy.—SUSAN GALANDIUK, M.D.

Editorial Comment: This article is important in that it reminds us that unsatisfactory pouch function can many times be corrected by reoperation.—SUSAN GALANDIUK, M.D.

Ileocecal reservoir reconstruction with physiologic function after total mesorectal cancer excision.

von Flüe MO, Degen LP, Beglinger C, Hellwig AC, Rothenbühler JM, Harder FH. Ann Surg 1996;224:204.

OBJECTIVE: To evaluate ileocecal reservoir reconstruction after total mesorectal cancer excision. METHODS: There were 20 patients with rectal cancer between 5 and 10 cm above the anal verge who underwent total mesorectal excision and reconstruction with an ileocecal interpositional reservoir. Perioperative and postoperative courses were evaluated as was anorectal function with proctoscopy, manometry, endoanal ultrasound, and defecography. Postoperative complications and results in terms of fecal incontinence were evaluated. OPERATIVE TECHNIQUE: A total mesorectal excision was performed without mobilization of the left colonic flexure. The distal ileum

with a 17-cm segment of cecum and ascending colon were then mobilized and anastomosed to the descending colon, with the ileum being attached to the colon and the right colonic segment being anastomosed at the anus. Eleven patients had a high anal anastomosis with preservation of the transition zone, and nine patients had a low anal anastomosis by hand suture technique at the dentate line. Protective transverse loop colostomy was constructed and closed three months later. RESULTS: No perioperative deaths occurred, but one major complication was observed (a ureterocecal fistula). Minor complications are not reported. FUNCTIONAL OUTCOME: Sixteen of 20 patients were reported to have complete continence for gas and stool, and four patients had occasional nocturnal staining of liquid stool. Patients were able to defer the urge to defecate at least ten minutes. Median stool frequency was two (range, 0–4) bowel movements per day. No stool-modifying medications were required, with the exception of fiber supplements. Global resting pressures were significantly lower than preoperative values. Postoperative squeeze pressures did not differ from preoperative values. Manometry showed no differences in the four patients with occasional nocturnal staining of liquid stools compared with the 16 patients with normal continence. Defecography showed no change in anorectal angle at rest; however, with straining, the anorectal angle decreased postoperatively. No change in pelvic floor descent was noted, and 6 of 15 patients failed to empty the pouch on defecography with the first movement. Endoanal ultrasound showed no evidence of sphincter injury in any patient. Colonic transit showed mean transit of 53 hours compared with 30 age-matched and gender-matched volunteers who had mean transit of less than 72 hours. No patient had demonstrable outlet obstruction. CONCLUSION: Ileocecal interpositional reservoir is safe and yields an excellent defecation quality and a nearly normal physiologic functional result.—GARNET J. BLATCHFORD, M.D.

The ileocecal reservoir for rectal replacement in complicated radiation proctitis.
von Flüe MO, Degen LP, Beglinger C, Harder FH. Am J Surg 1996;172:335.

OBJECTIVE: To asses function and outcome of the ileocecal reservoir-anal anastomosis performed for complicated radiation proctitis. METHODS: Two patients who underwent the ileocecal reservoir for complicated radiation proctitis were retrospectively reviewed and compared with 15 patients having the same procedure but with no radiation history. RESULTS: No perioperative morbidity related to this technique was observed. Neorectal patients demonstrated good defecation quality with maximum tolerable volumes, compliances, and anal manometry comparable with patients without radiation injury. CONCLUSIONS: This rectal replacement technique permits good defecation quality and excellent anorectal function.—WAYNE L. AMBROZE, JR., M.D.

Application of formaldehyde for treatment of hemorrhagic radiation-induced proctitis.
Roche B, Chautems R, Marti MC. World J Surg 1995;20:1092.

PURPOSE: To evaluate topical 4 percent formaldehyde as treatment for radiation-induced hemorrhagic proctitis. SETTING: Tertiary care center. DESIGN: Case series. PARTICIPANTS: Six patients (three men with prostate cancer, one woman with cervical cancer, and two women with anal canal cancer) with a mean age of 71 (range, 58–84) years with radiation-induced hemorrhagic proctitis. All patients had failed steroid enemas as their initial treatment. Mean duration of hemorrhage before formaldehyde treatment was 15 (range, 4–32) months. Mean units of blood transfused was 5.6 (range, 0–18). METHODS: Endoscopy and biopsy was first performed to exclude inflammatory bowel disease or recurrent tumor. Formaldehyde application was performed in the lithotomy position without sedation by using an anoscope to visualize the diseased area. Gauze was placed above the hemorrhagic margins, and cotton soaked with 4 percent formaldehyde was applied for 30 seconds to 3 minutes until the mucosa showed a "whitish" color and hemorrhage stopped. The anoscope was then pulled back and application repeated on all hemorrhagic areas. The rectum was then irrigated several times with saline and gauze removed. Duration of treatment varied from 10 to 35 minutes. Follow-up was performed on days 3 and 21 and then at 1, 3, 6, and 12 month intervals. Formaldehyde treatment may be repeated after the third week. RESULTS: In four cases, bleeding ceased after the first application. The two women with anal canal cancer required a second application three weeks later to definitively control the hemorrhage. Follow-up at 12 months showed control of hemorrhage with no stenoses or other complications. CONCLU-

SION: Local application of 4 percent formaldehyde may be the treatment of choice for radiation-induced hemorrhagic proctitis.—WILLIAM CIROCCO, M.D.

Inadvertent perforation of the rectum during abdominoperineal resection.
Porter GA, O'Keefe GE, Yakimets WW. Am J Surg 1996;172:324.

OBJECTIVE: To determine if inadvertent perforation of the rectum during abdominoperineal resection (APR) for rectal cancer is an independent risk factor for local recurrence and/or death. METHODS: This is a retrospective cohort study including all patients who underwent APR for primary adenocarcinoma of the rectum at a single teaching hospital from 1980 to 1990. Data were reviewed regarding patient demographics, presence of inadvertent perforation, histologic characteristics, adjuvant therapy, local recurrence, and survival. RESULTS: Of 178 patients included in this study, 42 (24 percent) had inadvertent perforation. Local recurrence was significantly higher in the perforated group than in the nonperforated group (54 *vs.* 17 percent; $P < 0.001$). Five-year survival was significantly decreased with inadvertent perforation (29 *vs.* 59 percent; $P = 0.003$). Multivariate analysis controlling for stage, grade, age, gender, and adjuvant therapy showed inadvertent perforation to be an independent risk factor for both increased local recurrence and decreased five-year survival. CONCLUSIONS: Inadvertent perforation of the rectum during APR is associated with increased local recurrence and decreased five-year survival.—WAYNE L. AMBROZE, JR., M.D.

Randomised comparison of leucocyte-depleted *versus* buffy-coat-poor blood transfusion and complications after colorectal surgery.
Jensen LS, Kissmeyer-Nielsen P, Wolff B, Qvist N. Lancet 1996;348:841.

OBJECTIVE: To determine if deleterious infectious complications secondary to blood transfusions during/after colorectal operations can be prevented by using leukocyte-depleted blood. DESIGN: Prospective randomized study. PARTICIPANTS: A total of 589 patients undergoing colorectal surgery. METHODS: A total of 290 patients were randomized to receive leukocyte-depleted blood and 299 patients to receive buffy-coat-poor blood if transfusion was clinically indicated. Postoperative septic complications were monitored prospectively. RESULTS: A total of 118 of 290 patients (41 percent) and 142 of 299 patients (48 percent) were actually transfused. Patients transfused with buffy-coat-poor blood developed significantly more infectious complications directly related to surgery (18.3 percent) than nontransfused patients (0.6 percent) or patients transfused with leukocyte-depleted blood (0 percent). Similarly, infectious complications unrelated to surgery (*e.g.*, pneumonia, urinary tract infections) were, respectively, 36.6, 7.1, and 14.4 percent. Rate of need for reoperation, usually for septic complications, paralleled previous findings, with rates of 16.9, 4.5, and 3.5 percent respectively. CONCLUSION: Allogenic leukocytes have a critical role in induction of transfusion-induced immunosuppression, which predisposes to impaired host defenses. Leukocyte depletion of blood products should be done before perioperative transfusion to minimize septic complications.—JUDITH L. TRUDEL, M.D.

Expression of MAGE genes in human colorectal carcinoma.
Mori M, Inoue H, Mimori K, *et al.* Ann Surg 1996;224:183.

OBJECTIVE: Identify the expression of human genes MAGE-1 and MAGE-3 in human colorectal carcinomas. MATERIALS AND METHODS: Tumor samples and matched control samples of normal colorectal tissue distant from the tumor site were studied. Assays for MAGE gene expression were then done. RESULTS: Fifty-four samples of colorectal carcinoma had a MAGE expression of 30, 28, and 20 percent for MAGE-1, MAGE-2, and MAGE-3, respectively. No expression of MAGE-1 factors were observed in normal tissue samples. Of the tumor samples, 37 percent of 54 samples expressed at least one of the three MAGE genes. Eleven percent of tumors expressed all three genes. MAGE gene expression was seen more frequently in cases with liver metastases than those without liver metastases. CONCLUSION: MAGE genes are expressed in one-third of tumor tissues from patients with colorectal carcinoma. This raises the possibility that immunotherapy specific to the MAGE gene might be beneficial in this minority of patients with colorectal carcinoma.—GARNET J. BLATCHFORD, M.D.

Aetiology and treatment of anal fissure.
Lund JN, Scholefield JH. Br J Surg 1996;83:1335.

Drs. Lund and Scholefield provide a thorough review of fissure-in-ano. There is a very detailed description of physiology and pharmacology related to internal anal sphincter control and an interesting historical perspective, along with current theories on the pathogenesis of fissure. Nonsurgical treatment of anal fissure is briefly discussed, as is surgical treatment, and newer innovations including treatment with topical nitrates and injection of botulinum toxin. There are more than one hundred references in this article, which serves as an excellent source for those interested in this subject.—SUSAN GALANDIUK, M.D.

Disruption of the internal anal sphincter can occur after transanal stapling.
Farouk R, Drew PJ, Duthie GS, Lee PW, Monson RT. Br J Surg 1996;83:1400.

Endoanal ultrasound was performed on 39 patients who were undergoing anterior resection for rectal carcinoma with stapled anastomosis. Patients were assessed before surgery, immediately after surgery, and three months postoperatively. There were no internal sphincter defects before operation; however, 7 of 39 patients had internal anal sphincter defects immediately after stapling and three months postoperatively. Defects were associated with the use of larger diameter circular staplers (31 and 29 mm).—SUSAN GALANDIUK, M.D.

Editorial Comment: This article highlights the care with which the anal canal must be dilated and handled when creating stapled colorectal anastomoses.—SUSAN GALANDIUK, M.D.

Laparoscopy for chronic abdominal pain.
Klingensmith ME, Soybel DI, Brooks DC. Surg Endosc 1996;10:1085.

OBJECTIVE: To evaluate the use of diagnostic laparoscopy in evaluation of patients presenting with chronic abdominal pain. METHODS: The definition of chronic abdominal pain in this study was pain that persisted for more than two months. In this group, the pain is of undetermined etiology with physical, laboratory, and radiographic evaluation noncontributory. Mean age in patients in this group was 39 years. Eighty-five percent of the group are females. RESULTS: Laparoscopic examination identified abnormalities in 65 percent of patients. Fifty-six percent of patients in this study underwent adhesiolysis. In 26 percent of patients studied, no operative intervention other than diagnostic laparoscopically was performed. In 73 percent of patients who had laparoscopy, their pain was improved postlaparoscopy independent of whether a positive finding or procedure was performed intraoperatively. CONCLUSION: Laparoscopy may assist in the demonstration of abnormal findings and can improve outcome in selected cases. Prior abdominal surgery is not an absolute contraindication to laparoscopic exploration for chronic abdominal pain. Characteristics of the patient population suggest that patients having undergone previous abdominal surgery with point-localized pain will experience a favorable outcome after laparoscopic evaluation and adhesiolysis when the pathology can be demonstrated.—GREGORY C. OLIVER, M.D.

Editorial Comment: The placebo effect of laparoscopic evaluation seems to certainly play a minor role in this series of difficult patients. Although laparoscopy for diagnostic purposes clearly has a role in these difficult patients, therapeutic benefit of lysis of adhesions that are nonobstructing and not producing ischemic symptomatology is difficult to demonstrate.—GREGORY C. OLIVER, M.D.

Laparoscopic-assisted reversal of Hartmann's procedure: a simplified technique and audit of twelve cases.
Macpherson SC, Hansell DT, Porteous C. J Laparoendoscopic Surg 1996;6:305.

PURPOSE: To evaluate laparoscopic-assisted reversal of Hartmann's procedure. SETTING: Tertiary care center. DESIGN: Case series. PARTICIPANTS: Between March 1993 and March 1995, 12 patients (seven women) with a mean age of 62 (range, 40–73) years underwent the procedure. The reason for the Hartmann's pouch was diverticulitis in nine patients and colorectal cancer in

three patients. Median time to reversal of Hartmann's procedure was 7.5 (range, 3–36) months. METHODS: Preoperative barium enema was used to estimate length of the rectal stump (5–29 cm). Following routine bowel preparation, the patient was placed in modified lithotomy position, the stoma was taken down and mobilized along with 10 to 12 cm of proximal colon, and the anvil of a circular stapler was inserted. The rectal stump was then dissected free. The colon was returned to the abdomen, and laparoscopic ports were placed. The circular stapler was introduced into the rectum, attached to the anvil of the proximal colon, closed, and fired. RESULTS: Laparoscopic-assisted reversal of Hartmann's procedure was accomplished in all 12 patients. Median anesthetic time was 165 (110–240) minutes. Proximal diverting colostomy was deemed necessary in one patient, and another patient had an inadvertent rectal perforation during dissection. Postoperative morbidity included one stoma wound infection, and another patient developed obstruction of the anastomosis, which required surgical revision. This latter patient had an anastomosis located on the lateral wall of the rectum because of trouble advancing the circular stapler to the most proximal wall of the Hartmann's pouch. There were no deaths, and median postoperative stay was eight (5–12) days. CONCLUSION: Consideration should be given to laparoscopic-assisted reversal of Hartmann's procedure for all patients.—WILLIAM CIROCCO, M.D.

Editorial Comment: Several unsubstantiated claims are made during the discussion of this article. Patients who will undergo a laparoscopic-assisted reversal of Hartmann's procedure are said to "suffer minimum physiologic upset and require little opiate analgesia therefore returning to their normal activities promptly." There is no supporting evidence for these vague statements and no control population for comparison. Furthermore, average length of stay is nearly nine days, which by the authors' own admission is similar to conventional surgery. There is no cost analysis for this laparoscopic procedure or estimate of patient satisfaction with it. One can only wonder where the evidence is to support the concluding sentence that "reversal of Hartmann's should now be considered laparoscopically in all patients." Is the procedure safer? Faster? Easier? Less costly? Does it allow shorter hospitalization with rapid return to "normal activities?" Although reversal of Hartmann's procedure may be appropriate for laparoscopy surgery, the implication that it is superior to conventional surgery can only be confirmed by a randomized clinical trial.—WILLIAM CIROCCO, M.D.

Laparoscopy in colorectal surgery.
Forde KA, Hulten L. Surg Endosc 1996;10:1039.

An editorial by Drs. Forde and Hulten points out the evolutionary status of laparoscopic colorectal surgery. Its potential advantages and pitfalls are clearly pointed out. A plea for the scientific study of laparoscopic procedures for colon and rectal surgery is made. The need for advanced training methods to shorten a learning curve for colorectal surgeons and new trainees is pointed out. This editorial does much to put the issue of laparoscopic colorectal surgery in a clearer and more accurate light.—GREGORY C. OLIVER, M.D.

Cost-utility analysis of home parenteral nutrition.
Richards DM, Irving MH. Br J Surg 1996;83:1226.

OBJECTIVE: To determine whether current practice using home parenteral nutrition is the most efficient way of treating intestinal failure by measuring its cost use. SETTING: University of Manchester Intestinal Failure Unit, Hope Hospital. METHODS: A validated health status questionnaire was used to measure quality-adjusted life years gained by treatment. The cost of treating a patient with intestinal failure was calculated as was the cost per quality-adjusted life year gained. RESULTS: Cost per quality-adjusted life year gained for an average patient with intestinal failure was 68,975 (pounds sterling). Treatment in hospital increased the amount to 190,000 (pounds sterling). CONCLUSION: Home care parenteral nutrition is 65 percent more cost-effective than hospital care.—DAVID A. ROTHENBERGER, M.D.

Editorial Comment: Professor Sir Miles Irving, in his relatively new role in the health technology assessment program, has performed an economic evaluation of home parenteral nutrition. The authors have a large experience with this type of care in their intestinal failure unit in Manchester. Their method of assessment involves determination of quality-adjusted life years gained, which was

determined from data on survival and quality of life. A cost use analysis is supposed to determine whether treatment was worthwhile in terms of cost compared with other health care programs.

The system for placing a patient on home parenteral nutrition differs greatly in the United Kingdom from that in the United States. Patients are trained in the hospital for three weeks before discharge. Our own insurance carriers would never tolerate this length of stay. Methods of cost analysis used in this article are difficult for a surgeon to understand without prior exposure. Cost per quality-adjusted life year was higher for older patients than for younger patients, and quality-adjusted survival was significantly better in younger compared with older patients. The longer a patient survives on hyperalimentation, the more cost-effective this treatment becomes. Weaning of hyperalimentation because of intestinal adaptation also reduces the cost per adjusted life year.

This article stresses the fact that surgeons need to become involved in cost and outcomes analysis. Professor Sir Miles Irving works for the government several days a week. Only with meaningful analyses like this will we be able to argue and defend our patient care to insurance carriers.—SUSAN GALANDIUK, M.D.